This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.345 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

1.	Facility Name and Mailing Address:	Thornburg Wastewater Treatment Facility 10900 HCC Drive Fredericksburg, VA 22408	SIC Code:	4952 WWTP
	Facility Location:	5225 Mud Tavern Road Woodford, VA 22580	County:	Spotsylvania
	Facility Contact Name:	Doug Crooks, Superintendent WWTF	Telephone Number:	540-507-7362
	Facility E-mail Address:	dcrooks@spotsylvania.va.us		
2.	Permit No.:	VA0029513	Expiration Date of previous permit:	01/21/2015
	Other VPDES Permits associated with this facility:		None	
	Other Permits associated with this facility:		None	
	E2/E3/E4 Status:	NA		
3.	Owner Name:	Spotsylvania County		
	Owner Contact/Title:	Ed Petrovitch, Director of Public Utilities	Telephone Number:	540-507-7300
	Owner E-mail Address:	epetrovitch@spotsylvania.va.us		
4.	Application Complete Date:	07/21/2014		
	Permit Drafted By:	Anna Westernik	Date Drafted:	11/06/2014
	Draft Permit Reviewed By:	Doug Frasier	Date Reviewed:	11/06/2014
	Review By:	Alison Thompson	Date Reviewed:	11/19/2014
	Public Comment Period:	Start Date: 12/11/2014	End Date:	01/012/2015

5. Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination. Since the drainage area is small and the receiving stream is intermittent, critical flows are zero.

Receiving Stream Name:	Po River, UT	Stream Code:	XDG
Drainage Area at Outfall:	0.19 sq.mi.	River Mile:	1.13
Stream Basin:	York River	Subbasin:	None
Section:	3	Stream Class:	III
Special Standards:	None	Waterbody ID:	VAN-F16R
7Q10 Low Flow:	0.0 MGD	7Q10 High Flow:	0.0 MGD
1Q10 Low Flow:	0.0 MGD	1Q10 High Flow:	0.0 MGD
30Q10 Low Flow:	0.0 MGD	30Q10 High Flow:	0.0 MGD
Harmonic Mean Flow:	0.0 MGD	30Q5 Flow:	0.0 MGD

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

X	State Water Control Law		EPA Guidelines
X	Clean Water Act	X	Water Quality Standards
X	VPDES Permit Regulation		Other
X	EPA NPDES Regulation		

7. Licensed Operator Requirements: Class II

8. Reliability Class: Class I

9. Permit Characterization:

	Private	X	Effluent Limited		Possible Interstate Effect
	Federal	X	Water Quality Limited		Compliance Schedule Required
	State		Whole Effluent Toxicity Program Required		Interim Limits in Permit
X	POTW	X	Pretreatment Program Required		Interim Limits in Other Document
	TMDL	X	e-DMR Participant		

10. **Wastewater Sources and Treatment Description:**

Wastewater treatment for this 0.345 MGD plant consists of a manual bar screen and aerated grit chamber, two aerated lagoons (one is operational during the warmer months and two are operational during the colder months), secondary clarifiers, sand filtration, chlorination, dechlorination and post aeration.

On December 9, 2003, the automatic lime feed system was placed online. A portion of the filter backwash water is pumped to a vat where it is continuously mixed with lime. This solution is delivered to the head of the plant through the filter backwash line at a continuous rate. The permittee states that this treatment unit will maintain average and minimum hardness values in the effluent of 175 mg/L and 150 mg/L, respectively.

Two chlorine contact tanks operate in series. 12.5% sodium hydroxide is added prior to the chlorine contact tanks. The effluent is metered after dechlorination with sodium bisulfite and post aerated before discharge to an unnamed tributary of the Po River.

See **Attachment 2** for a facility schematic/diagram and an aerial view of the treatment works.

TABLE 1 – OUTFALL DESCRIPTION

Outfall Number	Discharge Sources	Treatment	Design Flow(s)	Outfall Latitude/Longitude
001	Municipal Wastewater	See Item 10 above.	0.345 MGD	38° 08' 09.56"/ 77° 30' 57.26"
See **Attachment 3** for Spotsylvania quadrangle (170A)				

11. **Sludge Treatment and Disposal Methods:**

The waste sludge tank is pumped daily to a sludge holding tank. Every two weeks the waste sludge is hauled from this tank to the FMC WWTF (VA0068110) for treatment and then subsequently treated to a Class A Sludge by composting at the Livingston Landfill.

12. Discharges Within Waterbody VAN-F16R

TABLE 2 -- DISCHARGERS WITHIN WATERBODY VAN-F16R		
Individual VPDES Permits		
Permit Number	**Description**	**Receiving Stream Latitude / Longitude**
VA0061298	John J Wright Educational and Cultural Center	Po River, UT -- 38° 09' 19"/77° 25' 43"
VA0029769	Po River Water and Sewer WWTP	Po River -- 38° 08' 45"/77° 32' 30"
Single Family Home General Permits		
Permit Number	**Description**	**Receiving Stream**
VAG406416	Nichols Tom Property	Wrights Pond, UT
VAG406173	Saint Matthew Church Residence	Po River, UT
Storm Water Industrial General Permits		
Permit Number	**Description**	**Receiving Stream**
VAR050895	Lews Auto Service and Salvage	Po River, UT
VAR051320	Eppersons Used Auto Parts Incorporated	Po River, UT

13. Material Storage:

TABLE 3 -- MATERIAL STORAGE		
Materials Description	**Volume Stored**	**Spill/Stormwater Prevention Measures**
Lime	18,000 lbs. maximum	In storage shed on pallets
Sodium Hydroxide, 12.5%	120 gallons maximum	Stored in chemical feed room in 15-gallon drums
Sodium Bisulfite, 38%	120 gallons maximum	Stored in chemical feed room in 15-gallon drums
Calcium Chloride	50 lbs. maximum	Stored in shed on pallets
Gasoline	5 gallons maximum	Stored in shed in OSHA approved can
Muriatic Acid	4 gallons maximum	Stored in sand filter room

14. Site Inspection:

Performed by Anna Westernik and Rebecca Shoemaker on October 28, 2014 (see **Attachment 4**).

15. Receiving Stream Water Quality and Water Quality Standards:

a. Ambient Water Quality Data

This facility discharges to an unnamed tributary of the Po River (Stream Code XDG). The closest monitoring station is DEQ Ambient Station 8-POR004.13, located on Po River at Route 1, approximately 1.25 miles upstream from the confluence with the unnamed tributary XDG. The following is the water quality summary for this segment of the Po River, as taken from the 2012 Integrated Report:

DEQ monitoring stations located on this segment of the Po River:

- *DEQ ambient monitoring station 8-POR004.13, at Route 1.*

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. The aquatic life and wildlife uses are considered fully supporting. The fish consumption use was not assessed.

b. 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

TABLE 4 – 303(d) LISTED STREAM SEGMENTS AND TMDLS							
Waterbody Name	**Impaired Use**	**Cause**	**Distance From Outfall**	**TMDL completed**	**WLA**	**Basis for WLA**	**TMDL Schedule**
Impairment Information in the 2012 Integrated Report							
Po River	Recreation	*E. coli*	1.13 miles	----	----	----	2022
Mattaponi River	Fish Consumption	Mercury	55 miles	----	----	----	2018
		PCBs		----	----	----	2022

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2012 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories (wastewater, urban storm water, onsite/septic agriculture, air deposition). Section 17.e of this fact sheet provides additional information on specific nutrient monitoring for this facility to implement the provisions of the Chesapeake Bay TMDL.

The full planning statement is found in **Attachment 5.**

c. Receiving Stream Water Quality Criteria
Part IX of 9 VAC 25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, an unnamed tributary of the Po River, is located within Section 3 of the York River Basin, and is a Class III water.

Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, and a temperature that does not exceed 32°C at all times and maintain a pH of 6.0-9.0 standard units (S.U.).

Some Water Quality Criteria are dependent on the temperature and pH or Total Hardness of the stream and final effluent. The stream and final effluent values used to calculate criteria, wasteload allocations, and effluent limitations are described below.

1) pH and Temperature for Ammonia Criteria:
The freshwater aquatic life water quality criteria for ammonia are dependent on the instream temperature and pH. Since the effluent may have an impact on the instream values, the temperature and pH values of the effluent must also be considered when determining the ammonia criteria for the receiving stream. The 90th percentile temperature and pH values are used because they best represent the critical conditions of the receiving stream.

The critical 30Q10 and 1Q10 flows of the receiving stream have been determined to be 0.0 MGD. In cases such as this, effluent pH and temperature data alone may be utilized to establish the ammonia water quality criteria. See **Attachment 6** for the 90th percentile values of the effluent pH and temperature derived from bench sheets from September 2013 through August 2014.

Staff finds no significant difference from the pH and temperature data used to establish ammonia criteria and subsequent effluent limits in the previous permit reissuance and this reissuance (a 90th percentile pH value of 7.68 S.U. was calculated for this reissuance and a 90th percentile pH value of 7.52 S.U. was used to establish ammonia criteria in the previous reissuance; a 90th percentile temperature value of 24° C was calculated for this reissuance and a 90th percentile temperature value of 23° C was used to establish ammonia criteria in the previous reissuance). Therefore, the pH and temperature

values from the 2010 reissuance shall be used to determine ammonia criteria for this permit. A default winter temperature value of 15° C was utilized to calculate ammonia criteria. The ammonia water quality standards calculations from this reissuance and the previous reissuance in 2010 are shown in **Attachment 7**.

2) Total Hardness for Hardness-Dependent Metals Criteria:
The Water Quality Criteria for some metals are dependent on the receiving stream's total hardness (expressed as mg/L calcium carbonate) as well as the total hardness of the final effluent.

The 7Q10 of the receiving stream is zero and no ambient data is available; therefore, the effluent data for total hardness can be used to determine the hardness-dependent metals criteria. The hardness-dependent metals criteria in **Attachment 7** are based on a minimum operational hardness value of 150 mg/L since an automatic lime feed system is used at this facility to adjust hardness; the average hardness derived from monthly monitoring for the period of February 2010 through September 2014 and the minimum hardness were 189 mg/L and 124 mg/L (see **Attachment 8**).

Attachment A monitoring for metals conducted in April 2010, using the minimum operational hardness of 150 mg/L to calculate criteria, found the presence of copper, nickel, and zinc above their respective quantification levels. When reasonable potential evaluations for metals were conducted, it was determined that limits for metals were not needed. The requirement to monitor for metals is not in the permit. See **Attachment 9** for a summary of the April 2010 metals monitoring.

3) Bacteria Criteria:
The Virginia Water Quality Standards at 9VAC25-260-170.A state that the following criteria shall apply to protect primary recreational uses in surface waters:

E. coli bacteria per 100 ml of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean[1]
Freshwater *E. coli* (N/100 ml)	126

[1]For a minimum of four weekly samples [taken during any calendar month].

The Freshwater Water Quality/Wasteload Allocation Analysis in **Attachment 7** also details other water quality criteria applicable to the receiving stream.

d. Receiving Stream Special Standards
The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, an unnamed tributary of the Po River, is located within Section 3 of the York River Basin. This section has not been designated with a special standard.

e. Threatened or Endangered Species
The Virginia DGIF Fish and Wildlife Information System Database was searched on October 16 and 30, 2014 for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified within a 2 mile radius of the discharge: the Red Cockaded Woodpecker, the Dwarf Wedgemussel, the Upland Sandpiper, the Loggerhead Shrike, Bachman's Sparrow, and the Loggerhead Migrant Shrike. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and protect the threatened and endangered species found near the discharge.

The stream that the facility discharges to is within a reach identified as having a potential for Anadromous Fish Use. It is staff's best professional judgment that the proposed limits are protective of this use.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on stream flow. There are extended periods during which the stream is comprised solely of the discharge from the Wastewater Treatment Plant. Permit limits proposed have been established by determining wasteload allocations that will result in attaining and/or maintaining all water quality criteria applicable to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. In the case of ammonia evaluations, limits are needed if the 97th percentile of the thirty-day average effluent concentration is greater than the chronic WLA. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a. Effluent Screening:
Effluent data obtained from the discharge monitoring reports (DMRs) and Attachment A monitoring conducted in March 2010 (**Attachment 9**) has been reviewed and determined to be suitable for evaluation. A wasteload allocation analysis is required for ammonia, total residual chlorine (TRC), copper, nickel, and zinc.

b. Wasteload Allocations (WLAs):
Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{Co\,[\,Qe + (\,f\,)\,(Qs\,)\,] - [\,(\,Cs\,)\,(\,f\,)\,(\,Qs\,)\,]}{Qe}$$

Where:
- WLA = Wasteload allocation
- Co = In-stream water quality criteria
- Qe = Design flow
- Qs = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- Cs = Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the water quality criteria. Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since this is a Wastewater Treatment Plant, and total residual chlorine may be present since chlorine is used for disinfection. Additionally, copper, nickel, and zinc were found in Attachment A monitoring conducted in March 2010. **Attachment 7** details the water quality criteria and hence, WLA derivations for these pollutants.

c. Effluent Limitations Toxic Pollutants -- Outfall 001
9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N
Staff calculated the water quality criteria used to determine ammonia limits based on a pH value of 7.52 S.U., a summer temperature of 23° C, and a winter temperature of 15° C (see Section 15.c 1) of this fact sheet). A sole data point of 9.0 mg/L, as recommended by DEQ guidance for discharges containing domestic sewage, was used to ensure the evaluation adequately addressed the potential presence of ammonia.

This analysis resulted in monthly and weekly average limitations of 2.7 mg/L and 3.7 mg/L, respectively. However, in accordance with the antibacksliding provisions of the Clean Water Act, the current ammonia limits of 2.5 mg/L monthly average and 3.0 mg/L weekly average shall remain in the permit. See **Attachment 10** for the calculation of the current ammonia limitations.

Note: The Environmental Protection Agency (EPA) finalized new, more stringent ammonia criteria in August 2013; possibly resulting in significant reductions in ammonia effluent limitations. It is staff's best professional judgment that incorporation of these criteria into the Virginia Water Quality Standards is forthcoming. Several facilities may be required to comply with these new criteria during their next respective permit terms.

2) Total Residual Chlorine (TRC):
Chlorine is utilized for disinfection and is potentially in the discharge. In accordance with current DEQ guidance, staff employed a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.009 mg/L and a weekly average limit of 0.010 mg/L are proposed for this discharge (see **Attachment 10**). However, in accordance with the Antibacksliding provisions of the Clean Water Act, a monthly average TRC limit of 0.0080 mg/L shall remain in this permit.

3) Metals/Organics:
A minimum hardness requirement of 150 mg/L is present in this permit; and the reasonable potential analysis for copper, nickel, and zinc indicates that limitations are not warranted at this time. Therefore, there are no limits or monitoring for metals in this permit reissuance. **Attachment 9** details the metals limits analysis. Metals limits evaluated in 2010 were not re-examined because the criteria did not change.

d. Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients
Nonsignificant dischargers are subject to aggregate wasteload allocations for Total Nitrogen (TN), Total Phosphorus (TP), and sediments under the TMDL for the Chesapeake Bay. Monitoring for TN, TP and TSS is required in order to verify the aggregate wasteload allocations. Nutrient monitoring is being added to this permit reissuance to fulfill this requirement. TSS limits are already present in this and other sewage treatment plant permits.

e. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants
No changes to biochemical oxygen demand-5 day (BOD_5), total suspended solids (TSS), and pH limitations are proposed. The monitoring frequency for D.O. has been changed from three days per week to once per day. This is due to a typographical error found in the 2010 permit reissuance. An *E. coli* limitation has been added to ensure that the requirements of the 2011 Virginia Water Quality Standards at 9VAC25-260-170 to protect primary contact recreational uses in surface waters are fulfilled. Additionally, the Po River is impaired for *E coli* 1.13 miles downstream from the Outfall 001 discharge point.

D.O. and BOD_5 limitations are based on the stream modeling conducted in August 1986 (**Attachment 11**) and are set to meet the water quality criteria for D.O. in the receiving stream. Based on this modeling, the Thornburg WWTF was given a BOD_5 limit of 20 mg/L and a D.O. limit of 7.0 mg/L at a design flow of 0.345 MGD. The model incorporates the flow from two upstream dischargers (JJ Wright STP and Indian Acres STP). The Wishner STP, downstream from the Thornburg WWTF, is included in this model but is no longer in service. However, the model can still be considered valid since there have been no requests for increases in flow from the modeled dischargers and the Wishner STP was downstream of the Thornburg WWTF.

It is staff's practice to equate TSS limits with the BOD_5 limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

f. Effluent Limitations and Monitoring Summary:
The effluent limitations are presented in the following table. Limits were established for BOD_5, TSS, Ammonia as N, pH, D.O., and TRC. The limit for Total Suspended Solids is based on Best Professional Judgment. Monitoring for nutrients and hardness is required.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the current VPDES Permit Manual.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for BOD and TSS (or 65% for equivalent to secondary). The limits in this permit are water-quality-based effluent limits and result in greater than 85% removal.

18. Antibacksliding:
All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19. Effluent Limitations/Monitoring Requirements:
Design flow is 0.345 MGD.
Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	1, 2	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
BOD_5 [a]	2, 3	20 mg/L 26 kg/day	30 mg/L 39 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS) [a, b]	4	20 mg/L 26 kg/day	30 mg/L 39 kg/day	NA	NA	3D/W	8H-C
Dissolved Oxygen (D.O.)	2, 3	NA	NA	7.0 mg/L	NA	1/D	Grab
Ammonia, as N	2	2.5 mg/L	3.0 mg/L	NA	NA	3D/W	8H-C
E. coli (Geometric Mean) [c]	2, 5	126 n/100ml	NA	NA	NA	1/W	Grab
Total Residual Chlorine (after contact tank)	6	NA	NA	1.0 mg/L	NA	3/D at 4-hr Intervals	Grab
Total Residual Chlorine (after dechlorination)	2	0.008 mg/L	0.010 mg/L	NA	NA	3/D at 4-hr Intervals	Grab
Total Phosphorus (TP) [d]	7	NL (mg/L)	NA	NA	NA	1/Y	Grab
Total Kjeldahl Nitrogen (TKN) [d]	7	NL (mg/L)	NA	NA	NA	1/Y	Grab
Nitrite + Nitrate [d]	7	NL (mg/L)	NA	NA	NA	1/Y	Grab
Total Nitrogen (TN) [d, e]	7	NL (mg/L)	NA	NA	NA	1/Y	Calculated
Total Hardness	4	NA	NA	NL mg/L	NA	3D/W	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Water Quality Standards
3. Stream Model -- **Attachment 11**
4. Best Professional Judgment
5. Po River TMDL
6. DEQ Disinfection Guidance
7. Chesapeake Bay TMDL

MGD= Million gallons per day.
NA= Not applicable.
NL= No limit; monitor and report.
TIRE= Totalizing, indicating and recording equipment.
S.U.= Standard units.

1/D= Once every day.
3D/W= Three days a week.
1/W= Once every week.
3/D= Three per day.
1/Y= Once every calendar year.

8H-C= A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by10% or more during the monitored discharge.

Grab= An individual sample collected over a period of time not to exceed 15 minutes.

a. At least 85% removal for BOD_5 and TSS shall be attained.

b. TSS shall be expressed as two significant figures.

c. Samples shall be collected between 10:00 a.m. and 4:00 p.m.

d. See Part I.B.4 of the permit -- Nutrient Reporting Calculations.

e. Total Nitrogen, which is the sum of TKN and Nitrite + Nitrate, shall be derived from the results of those tests.

20. Other Permit Requirements:

a. Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels, and compliance reporting instructions.
The additional chlorine requirements are necessary per the Sewage Collection and Treatment Regulations at 9VAC25-790 and by the Water Quality Standards at 9VAC25-260-170. A minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more that 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be <1.0 mg/L with any TRC <0.6 mg/L considered a system failure. Monitoring at numerous sewage treatment plants has concluded that a TRC residual of 1.0 mg/L is an adequate indicator of compliance with the *E. coli* criteria. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

b. Permit Section Part I.C., details the requirements of a Pretreatment Program.
The VPDES Permit Regulation at 9VAC25-31-210 requires monitoring and 9VAC25-31-220.D requires all dischargers protect water quality. The VPDES Permit Regulation at 9VAC25-31-730 through 900 and 40 CFR Part 403 requires POTWs with a design flow of > 5 MGD and receiving from Industrial Users (IUs) pollutants that pass through or interfere with the operation of the POTW or are otherwise subject to pretreatment standards to develop a pretreatment program.

Spotsylvania County is required to implement an approved pretreatment program in accordance with the Pretreatment Regulation at 9VAC25-31-800. Spotsylvania County operates several wastewater treatment plants with a combined flow of greater than 5 MGD. Significant industrial users (SIUs) discharge to the FMC collection system only. However, the Thornburg WWTP must receive a requirement in this permit to conduct an industrial user survey because it is owned and operated by Spotsylvania County even though it likely does not have SIUs discharging to its collection system. If it was found that the Thornburg WWTP receives discharge from a SIU, local limits will have to be developed for the POTW and the SIU would have to be permitted by the county.

21. Other Special Conditions:

a. **95% Capacity Reopener.** The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b. **Indirect Dischargers.** Required by the VPDES Permit Regulation at 9VAC25-31-200 B.1 and B.2 for POTWs that receive waste from someone other than the owner of the treatment works.

c. **Operations and Maintenance Manual Requirement.** Required by the Code of Virginia at §62.1-44.19, the Sewage Collection and Treatment Regulations at 9VAC25-790, and the VPDES Permit Regulation at 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d. **CTC, CTO Requirement.** The Code of Virginia at §62.1-44.19 and the Sewage Collection and Treatment Regulations at 9VAC25-790 require that all treatment works treating wastewater obtain a Certificate to Construct (CTC) prior to commencing construction and obtain a Certificate to Operate (CTO) prior to commencing operation of the treatment works.

e. **Licensed Operator Requirement.** The Code of Virginia at §54.1-2300 et seq., the VPDES Permit Regulation at 9VAC25-31-200 C, and the Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations at 18VAC160-20-10 et seq. requires licensure of operators. This facility requires a Class II operator.

f. **Reliability Class.** The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of I.

g. **Water Quality Criteria Reopener.** The VPDES Permit Regulation at 9VAC25-31-220 D requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.

h. **Sludge Reopener.** The VPDES Permit Regulation at 9VAC25-31-220.C requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

i. **Sludge Use and Disposal.** The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

j. **TMDL Reopener.** This special condition is to allow the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

k. **Nutrient Reopener.** 9VAC25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment through new construction, expansion or upgrade. 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

22. Permit Section Part II.

Required by the VPDES Regulation at 9VAC25-31-190. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures, and records retention.

23. Changes to the Permit from the Previously Issued Permit:

a. Special Conditions:
   1) A Nutrient Reopener Special Condition has been added.
   2) The Water Quality Criteria Monitoring Special Condition has been removed.

b. Monitoring and Effluent Limitations:
   1) An *E. coli* limitation has been added.
   2) Nutrient monitoring has been added per DEQ Guidance.
   3) The monitoring frequency for D.O. has been changed from three days per week to once per day. This was a typographical error in the 2010 permit reissuance.

c. Other
   The requirement for VELAP Certification of laboratories has been added to Part II of the permit.

24. Variances/Alternate Limits or Conditions: None

25. Public Notice Information:

First Public Notice Date: 12/11/2014 Second Public Notice Date: 12/18/2014

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3837, anna.westernik@deq.virginia.gov. See **Attachment 12** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. Additional Comments:

Previous Board Action(s): None

Staff Comments: On October 16 and 30, 2014, the Threatened and Endangered Species Coordination Form and the threatened and endangered species search was sent to Brett Hillman of the U.S. Fish and Wildlife Service, the Virginia Fish and Wildlife Service, and the Department of Conservation and Recreation. The following is the response from Brett Hillman of the U.S. Fish and Wildlife Service on November 6, 2014.

> The facility covered by this permit discharges its wastewater to an unnamed tributary of the Po River. The federally listed endangered Dwarf Wedgemussel (*Alasmidonta heterodon*) and the Yellow Lance (*Elliptio lanceolata*), a federal species of concern that has been petitioned for listing under the Endangered Species Act, are known to occur in the Po River. Based on our review of the current permit and the proposed changes to it, we don't anticipate any adverse effects to either the Dwarf Wedgemussel or the Yellow Lance provided the permittee adheres to the permit conditions.

On October 16 and 30, 2014 the Threatened and Endangered Species Coordination Form was sent to the Virginia Department of Conservation and Recreation (DCR) and the Virginia Department of Game and Inland Fisheries (VDGIF). The following is the response from Alli Baird, Coastal Zone Locality Liason with DCR.

> To minimize impacts to aquatic resources, DCR recommends the use of UV/ozone to replace chlorination disinfection and utilization of new technologies as they become available to improve water quality. Due to the legal status of the Dwarf Wedgemussel, DCR also recommends coordination with the U.S. Fish and Wildlife Service and Virginia's Regulatory authority for the management and protection of this species, VDGIF, to ensure compliance with the Virginia Endangered Species Act (VA ST § § 29.1-563 – 570).
>
> Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.
>
> There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Public Comment: No comments were received during the public notice period.

Attachments

Attachment 1	Flow Frequency Analyses
Attachment 2	Treatment System Schematic/Flow Diagram and Aerial View of the Treatment Plant
Attachment 3	Spotsylvania Quadrangle Topographic Map (170A)
Attachment 4	Site Inspection Performed by Anna Westernik and Rebecca Shoemaker on October 28, 2014
Attachment 5	Planning Statement for the Thornburg WWTF
Attachment 6	90th Percentile Values of the Effluent pH and Temperature Derived from September 2013 through August 2014 Bench Sheets
Attachment 7	Water Quality Criteria and WLA Analysis
Attachment 8	Average Hardness Derived from Monthly Monitoring for the Period of February 2010 through September 2014
Attachment 9	Summary of the April 2010 Metals Monitoring and Limits Derivation
Attachment 10	Ammonia and TRC Limits Derivation
Attachment 11	Stream Modeling Conducted In August 1986
Attachment 12	Public Notice

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Office of Water Quality Assessments
629 East Main Street P.O. Box 10009 Richmond, Virginia 23219

SUBJECT: Flow Frequency Determination
Thornburg WWTP – #VA0029513

TO: Kenneth Blodgett, NRO

FROM: Paul E. Herman, P.E., WQAP

DATE: May 24, 1999

COPIES: Ron Gregory, Charles Martin, File

This memo supersedes my May 12, 1994, memo to Raymond Jay concerning the subject VPDES permit.

The Thornburg WWTP discharges to an unnamed tributary of the Po River near Thornburg, Virginia. Flow frequencies are required at this site for use by the permit writer in developing the VPDES permit.

The flow frequencies for the discharge receiving stream were determined by inspection of the USGS Spotsylvania Quadrangle topographic map. The map depicts the stream as intermittent at the discharge point. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and harmonic mean. For modeling purposes, flow frequencies have been determined for the first perennial reach downstream of the discharge point.

The VDEQ has operated a continuous record gage on the Po River near Spotsylvania, VA (#01673800) since 1962. The gage is located approximately 4.0 miles east of the discharge point, at the Route 738 bridge , in Spotsylvania County, VA. The flow frequencies for the perennial point were determined using drainage area proportions and do not address any withdrawals, discharges, or springs that may lie upstream. The flow frequencies for the gage and the perennial point are presented below.

Po River near Spotsylvania, VA (#01673800):

Drainage Area = 77.4 mi^2

1Q10 = 0.13 cfs	High Flow 1Q10 = 6.2 cfs
7Q10 = 0.18 cfs	High Flow 7Q10 = 9.1 cfs
30Q5 = 0.77 cfs	HM = 4.4 cfs

UT to Po River at perennial point (above pond):

Drainage Area = 0.44 mi^2

1Q10 = 0.0007 cfs	High Flow 1Q10 = 0.035 cfs
7Q10 = 0.0010 cfs	High Flow 7Q10 = 0.052 cfs
30Q5 = 0.0044 cfs	HM = 0.0 cfs

The high flow months are December through May. The harmonic mean is zero because of the zero flow events anticipated to occur at the perennial point (refer to the very low 1Q10 value for the perennial point).

If you have any questions concerning this analysis, please let me know.

Attachment 1

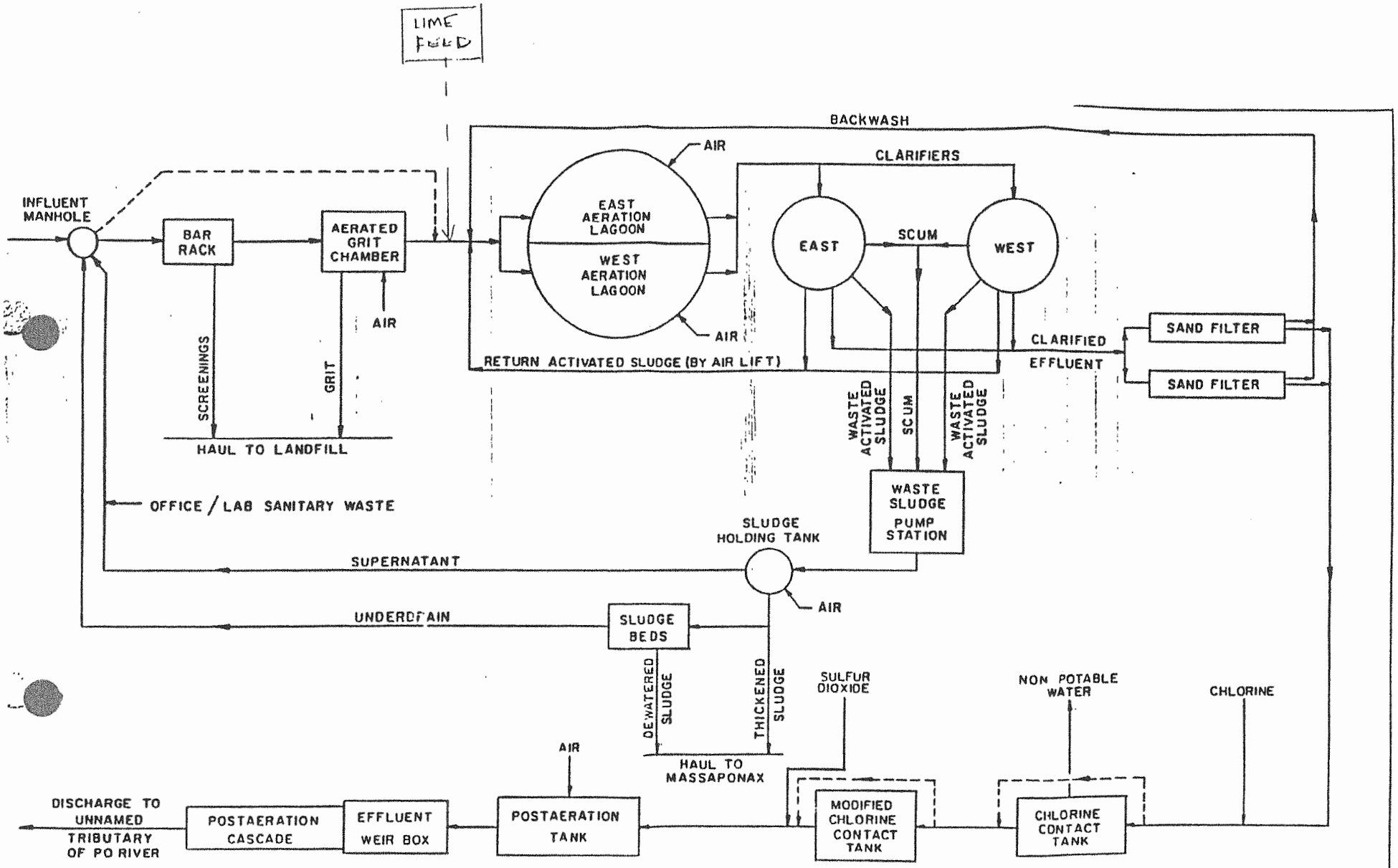
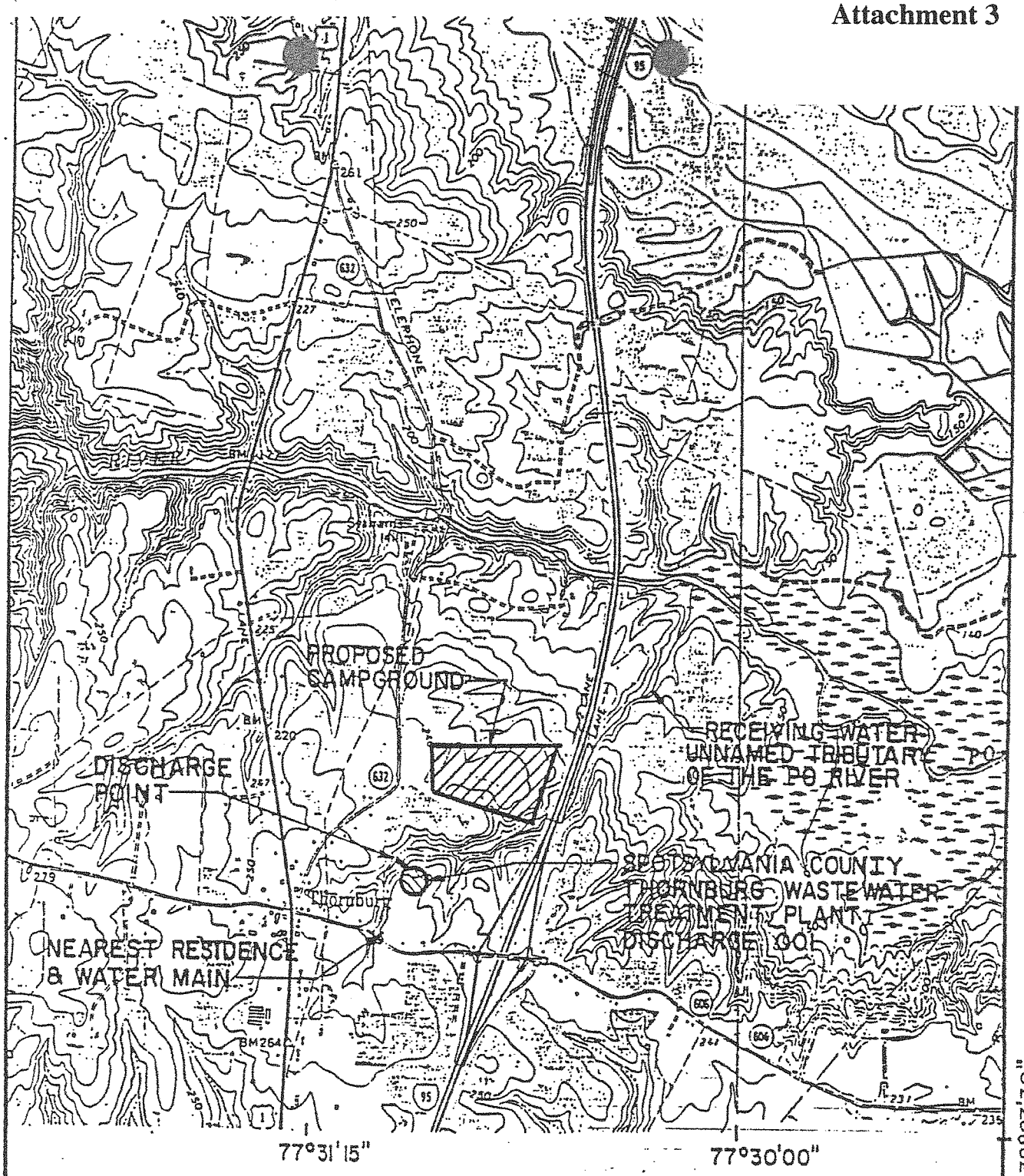
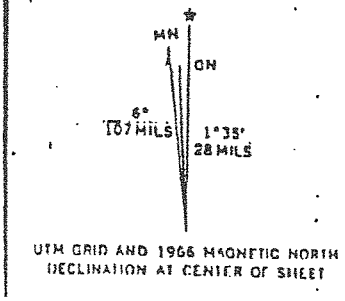


FIGURE 1.5-1
PROCESS FLOW DIAGRAM
THORNBURG
WASTEWATER TREATMENT PLANT
COUNTY OF SPOTSYLVANIA, VIRGINIA

Attachment 2


38 8 9.56, -77 30 57.26
© 2014 Google
1994
Imagery Date: 10/25/2013 38°08'08.31" N 77°30'56.08" W elev 224 ft





UTM GRID AND 1966 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

FIGURE B-LOCATION MAP
SPOTSYLVANIA CO. THORNBURG WTP
FROM U.S.G.S. MAPS
SPOTSYLVANIA, VA. 1966
GUINEA, VA. 1972
SCALE: 1" = 2000'
DATE: 3 APRIL 1987

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

Northern Regional Office

TO: File

FROM: Anna Westernik, Water Permit Writer

DATE: October 31, 2014

SUBJECT: October 28, 2014 Site Inspection of the Thornburg WWTF

A site visit was made to the Thornburg WWTF on October 28, 2014 for the purpose of touring the facility prior to reissuing the permit. Individuals present during the inspection were Doug Crooks, Stewart Robbins, and Tammy Stanley from Spotsylvania County and myself and Rebecca Shoemaker from DEQ.

Wastewater treatment for this 0.345 MGD plant consists of a manual bar screen and aerated grit chamber, two aerated lagoons (one is operational during the warmer months and two are operational during the colder months), secondary clarifiers, sand filtration, chlorination, dechlorination and post aeration.

On December 9, 2003, an automatic lime feed system was placed online. A portion of the filter backwash water is pumped to a vat where it is continuously mixed with lime. This solution is delivered to the head of the plant through the filter backwash line at a continuous rate. The permittee states that this treatment unit will maintain average and minimum hardness values in the effluent of 175 mg/l and 150 mg/l, respectively.

Two chlorine contact tanks operate in series. 12.5% sodium hydroxide is added prior to the chlorine contact tanks. The effluent is metered after dechlorination with sodium bisulfite. The effluent travels through a post aeration unit prior to discharge to an unnamed tributary of the Po River.

Outfall 001 discharges to an unnamed tributary to the Po River. Flow was observed in the river. The unnamed tributary is a fairly flat meandering stream with a gravel bottom. On this date, the effluent was clear; no aquatic life was observed in the stream.

All chemicals at the sewage treatment plant are stored using secondary containment.

The waste sludge tank is pumped daily to a sludge holding tank. Every two weeks the waste sludge is hauled from this tank to the FMC sewage treatment plant for treatment. Disposal of the sludge is through composting at the Livingston Landfill.

To:	Anna Westernik
From:	Rebecca Shoemaker
Date:	October 29, 2014
Subject:	Planning Statement for the Thornburg Community STP
Permit Number:	VA0029513

Information for Outfall 001:

Discharge Type: Municipal
Discharge Flow: 0.345 MGD
Receiving Stream: Po River, UT
Latitude / Longitude: 38° 08' 09.56"; 77° 30' 57.26"
Rivermile: 1.13
Streamcode: XDG
Waterbody: VAN-F16R
Water Quality Standards: Class III, Section 3, no Special Standards
Drainage Area: 0.19 mi^2

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

   This facility discharges to an unnamed tributary to Po River (streamcode XDG). The closest monitoring station is DEQ ambient station 8-POR004.13, located on Po River at Route 1, approximately 1.25 miles upstream from the confluence with unnamed tributary XDG. The following is the water quality summary for this segment of Po River, as taken from the 2012 Integrated Report:

   DEQ monitoring stations located on this segment of the Po River:
   - *DEQ ambient monitoring station 8-POR004.13, at Route 1.*

   E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. The aquatic life and wildlife uses are considered fully supporting. The fish consumption use was not assessed.

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

   No.

Attachment 5

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

Yes.

Table B. Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the 2012 Integrated Report							
Po River	Recreation	*E. coli*	1.13 miles	----	----	----	2022
Mattaponi River	Fish Consumption	Mercury	55 miles	----	----	----	2018
		PCBs		----	----	----	2022

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

There are no public water supply intakes located within five miles of this facility.

Thornburg WWTP (VA0029513)
Effluent pH/Temp Data
September 2013 -- August 2014

	pH (S.U.)		Temp (°C)
Sep-13	7.02		23.8
	7.60		24.9
	7.68		24.9
	7.64		23.5
	7.73		22.4
	7.41		21.8
	7.09		20.5
	7.30		21.3
	7.73		21.9
	7.53		22.4
	7.44		23.8
	7.33		24.1
	7.43		23.9
	7.51		21.2
	7.58		19.4
	7.53		19.3
	7.82		18.7
	7.78		17.8
	7.68		17.5
	7.57		18.2
	7.25		17.6
	7.14		19.8
	7.53		18.1
	7.55		17.5
	7.66		17.0
	7.58		17.9
	7.45		18.0
	7.25		17.7
	7.54		17.7
	7.61		17.6
Oct-13	7.55		17.8
	7.71		18.4
	7.48		19.4
	7.56		19.9
	7.53		21.1
	7.28		21.5
	7.54		21.9
	7.56		19.4
	7.70		17.3
	7.32		16.3
	7.43		16.7
	7.15		17.7

Attachment 6

Thornburg WWTP (VA0029513)
Effluent pH/Temp Data
September 2013 -- August 2014

	pH (S.U.)		Temp (°C)
	7.26		18.1
	7.37		18
	7.47		17.5
	7.52		17.9
	7.59		18.4
	7.50		17.5
	7.22		16.8
	7.04		16.1
	7.54		14.7
	7.47		14.6
	7.31		14.7
	7.46		13.4
	7.76		12.4
	7.25		11.2
	7.11		11.3
	7.77		11.7
	7.87		12.3
	7.78		12.9
	7.60		14.2
Nov-13	7.73		15.9
	7.35		17.0
	7.89		16.8
	7.43		12.4
	7.81		11.4
	7.78		11.7
	7.56		13.2
	7.53		13.2
	7.45		11.0
	7.52		10.6
	7.14		10.8
	7.47		10.6
	7.62		9.1
	7.52		7.8
	7.47		8.4
	7.23		9.5
	6.80		11.8
	7.31		13.8
	7.80		13.2
	7.58		11.1
	7.68		9.9
	7.48		10.2
	7.51		12.0

Thornburg WWTP (VA0029513)
Effluent pH/Temp Data
September 2013 -- August 2014

	pH (S.U.)		Temp (°C)
	7.46		9.7
	7.68		7.3
	7.46		7.0
	7.33		7.7
	7.47		7.7
	7.51		6.8
	7.41		6.5
Dec-13	7.36		6.3
	7.45		7.2
	7.55		8.2
	7.49		9.2
	7.51		11.3
	7.68		13.4
	6.94		12.1
	7.16		9.2
	7.50		8.5
	7.49		8.8
	7.45		8.1
	7.51		7.3
	7.27		6.8
	7.35		6.9
	7.39		7.5
	7.69		7.9
	7.72		7.3
	7.31		7.5
	7.48		7.1
	7.53		7.9
	7.23		10.8
	6.81		14.2
	7.26		15.1
	7.23		11.9
	7.54		8.9
	7.56		6.9
	7.42		6.7
	6.97		6.7
	7.28		8.6
	7.37		9.1
	7.34		8.6
Jan-14	7.53		7.7
	7.50		7.4
	7.27		6.4
	7.28		4.8

Thornburg WWTP (VA0029513)
Effluent pH/Temp Data
September 2013 -- August 2014

	pH (S.U.)		Temp (°C)
	6.84		5.2
	7.26		7.4
	7.52		5.2
	7.30		3.5
	7.57		3.8
	7.50		4.9
	7.09		5.1
	7.21		8.2
	7.50		7.9
	7.57		9.2
	7.60		8.8
	7.49		8.3
	7.79		7.1
	7.06		7.0
	7.12		5.7
	7.49		6.1
	7.46		6.3
	7.62		4.2
	7.50		3.6
	7.33		1.6
	6.88		1.5
	6.83		1.7
	7.20		2.1
	7.04		2.6
	7.10		1.5
	7.40		1.1
	7.29		1.8
Feb-14	7.30		2.9
	7.07		4.9
	7.40		6.6
	7.28		6.5
	7.31		6.5
	7.41		6.5
	7.38		6.2
	7.34		5.6
	7.26		5.4
	7.37		5.2
	7.78		4.4
	7.37		3.6
	7.13		3.4
	7.10		4.9
	7.03		6.0

Thornburg WWTP (VA0029513)
Effluent pH/Temp Data
September 2013 -- August 2014

	pH (S.U.)		Temp (°C)
	6.81		6.0
	7.23		5.8
	7.38		6.2
	7.33		6.4
	7.81		7.6
	7.36		7.8
	7.11		8.4
	7.26		8.3
	7.48		8.6
	7.58		7.2
	7.32		6.5
	7.35		6.5
	7.67		6.0
Mar-14	7.13		4.6
	7.00		6.1
	7.21		5.9
	7.42		4.1
	7.60		3.9
	7.58		4.8
	7.40		5.0
	7.29		7.3
	6.96		8.7
	7.12		8.2
	7.55		9.3
	7.47		10.1
	7.72		9.3
	7.49		7.6
	7.33		8.6
	7.32		8.8
	7.12		7.5
	7.23		6.4
	7.48		6.4
	7.41		8.1
	7.55		8.4
	7.43		9.0
	7.40		9.4
	7.60		7.8
	7.55		6.5
	7.42		6.3
	7.63		5.7
	7.43		7.4
	6.95		11.6

Thornburg WWTP (VA0029513)
Effluent pH/Temp Data
September 2013 -- August 2014

	pH (S.U.)		Temp (°C)
	7.11		10.8
	7.33		10.7
Apr-14	7.27		10.6
	7.31		11.4
	7.37		12.1
	7.50		12.4
	7.47		13.3
	7.58		12.1
	7.60		10.4
	7.30		11.6
	7.53		11.8
	7.17		12.3
	7.14		12.5
	7.02		14.5
	7.01		15.5
	7.23		16.5
	7.30		16.8
	7.35		13.6
	7.53		11.8
	7.38		12.0
	7.14		12.7
	7.14		12.9
	7.40		12.7
	7.40		13.5
	7.44		14.4
	7.51		13.8
	7.52		13.2
	7.36		14.3
	7.33		14.4
	7.57		14.7
	7.48		13.8
	7.42		13.8
May-14	7.20		16.1
	7.15		15.9
	7.39		15.5
	7.03		15.6
	7.57		15.4
	7.45		15.1
	7.62		16.0
	7.76		16.3
	7.64		18.0
	7.19		19.3

Thornburg WWTP (VA0029513)
Effluent pH/Temp Data
September 2013 -- August 2014

pH (S.U.)		Temp (°C)
7.56		19.8
7.37		18.9
7.40		20.6
7.54		21.0
7.29		19.9
7.23		19.8
7.16		18.3
7.17		17.0
7.37		15.7
7.40		15.7
7.43		17.0
7.45		20.0
7.39		19.6
6.95		19.2
7.16		19.0
7.35		19.4
7.34		20.5
7.36		21.1
7.38		21.5
7.61		19.1
6.99		19.1
7.41		19.0
7.47		18.0
7.43		19.0
7.37		22.0
7.09		21.0
7.32		21.0
7.12		20.0
7.00		21.0
7.15		21.0
7.29		22.0
7.33		23.0
7.28		23.0
7.09		23.0
7.27		22.0
7.13		21.0
7.24		21.0
7.23		24.0
7.50		25.0
7.38		25.0
7.43		24.0
7.25		23.0

Jun-14

Thornburg WWTP (VA0029513)
Effluent pH/Temp Data
September 2013 -- August 2014

	pH (S.U.)		Temp (°C)
	7.25		23.0
	7.66		22.0
	7.29		22.0
	7.72		23.0
	7.70		25.0
	7.77		24.0
	7.69		24.0
	7.34		23.0
	7.47		23.0
Jul-14	7.74		23.3
	7.42		24.6
	7.50		25.2
	7.14		25.0
	7.06		23.0
	7.47		21.4
	7.52		22.2
	7.51		24.4
	7.60		24.7
	7.56		24.5
	7.69		23.9
	7.74		23.8
	7.65		24.8
	7.79		25.2
	7.65		25.8
	7.46		24.2
	7.38		22.9
	7.41		22.1
	7.14		22.5
	7.28		22.5
	7.52		23.3
	7.55		23.8
	7.59		24.0
	7.66		24.9
	7.19		23.3
	7.11		22.9
	7.00		23.8
	7.74		24.2
	7.61		23.3
	7.28		21.8
	7.46		21.0
Aug-14	7.72		22.1
	7.29		22.1

Thornburg WWTP (VA0029513)
Effluent pH/Temp Data
September 2013 -- August 2014

pH (S.U.)		Temp (°C)
7.07		22.8
7.12		22.9
7.24		23.1
7.55		23.5
7.53		23.2
7.20		22.8
7.24		22.2
6.93		23.7
7.15		22.5
7.34		22.6
7.42		23.6
7.61		22.8
7.73		22.0
7.12		21.4
7.35		21.6
7.38		22.3
7.34		23.1
7.58		23.9
7.76		23.6
7.60		24.2
7.10		24.4
7.01		23.0
7.37		22.2
7.58		21.7
7.65		22.2
7.64		22.6
7.76		22.8
7.29		22.3
7.21		23.9

90th Percentile	7.68	23.56
10th Percentile	7.11	6.00

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Thornburg WWTP Permit No.: VA0029513

Receiving Stream: Po River, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	mg/L
90% Temperature (Annual) =	deg C
90% Temperature (Wet season) =	deg C
90% Maximum pH =	SU
10% Maximum pH =	SU
Tier Designation (1 or 2) =	1
Public Water Supply (PWS) Y/N? =	n
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

Stream Flows

1Q10 (Annual) =	0 MGD
7Q10 (Annual) =	0 MGD
30Q10 (Annual) =	0 MGD
1Q10 (Wet season) =	0 MGD
30Q10 (Wet season)	0 MGD
30Q5 =	0 MGD
Harmonic Mean =	0 MGD

Mixing Information

Annual - 1Q10 Mix =	0 %
- 7Q10 Mix =	0 %
- 30Q10 Mix =	0 %
Wet Season - 1Q10 Mix =	0 %
- 30Q10 Mix =	0 %

Effluent Information

Mean Hardness (as CaCO3) =	150 mg/L
90% Temp (Annual) =	23 deg C
90% Temp (Wet season) =	15 deg C
90% Maximum pH =	7.52 SU
10% Maximum pH =	7.1 SU
Discharge Flow =	0.345 MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile [C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	1.93E+01	2.48E+00	na	--	1.93E+01	2.48E+00	na	--	--	--	--	--	--	--	--	--	1.93E+01	2.48E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	1.93E+01	4.16E+00	na	--	1.93E+01	4.16E+00	na	--	--	--	--	--	--	--	--	--	1.93E+01	4.16E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	o	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine [C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	6.2E+00	1.6E+00	na	--	6.2E+00	1.6E+00	na	--	--	--	--	--	--	--	--	--	6.2E+00	1.6E+00	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	7.9E+02	1.0E+02	na	--	7.9E+02	1.0E+02	na	--	--	--	--	--	--	--	--	--	7.9E+02	1.0E+02	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene [C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	2.0E+01	1.3E+01	na	--	2.0E+01	1.3E+01	na	--	--	--	--	--	--	--	--	--	2.0E+01	1.3E+01	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD [C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE [C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT [C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane [C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane [C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene [C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin [C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene [C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene[C]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene[C]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone[C]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	2.0E+02	2.3E+01	na	--	2.0E+02	2.3E+01	na	--	--	--	--	--	--	--	--	--	2.0E+02	2.3E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [C]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	2.6E+02	2.9E+01	na	4.6E+03	2.6E+02	2.9E+01	na	4.6E+03	--	--	--	--	--	--	--	--	2.6E+02	2.9E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine[C]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine[C]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine[C]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total[C]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [C]	0	9.6E+00	7.4E+00	na	3.0E+01	9.6E+00	7.4E+00	na	3.0E+01	--	--	--	--	--	--	--	--	9.6E+00	7.4E+00	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**na**	**4.2E+03**
Silver	0	6.9E+00	--	na	--	6.9E+00	--	na	--	--	--	--	--	--	--	--	--	**6.9E+00**	**--**	**na**	**--**
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.0E+01**
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.3E+01**
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.7E-01**
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.0E+03**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**na**	**2.8E-03**
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	**4.6E-01**	**7.2E-02**	**na**	**--**
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**7.0E+01**
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.6E+02**
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.0E+02**
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
Zinc	0	1.7E+02	1.7E+02	na	2.6E+04	1.7E+02	1.7E+02	na	2.6E+04	--	--	--	--	--	--	--	--	**1.7E+02**	**1.7E+02**	**na**	**2.6E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	9.4E-01
Chromium III	6.2E+01
Chromium VI	6.4E+00
Copper	7.6E+00
Iron	na
Lead	1.4E+01
Manganese	na
Mercury	4.6E-01
Nickel	1.7E+01
Selenium	3.0E+00
Silver	2.8E+00
Zinc	6.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Thornburg WWTP (VA0029513)
Effluent Hardness Values
March 2010 -- October 2014

Date DMR Due	CONC MIN (mg/L)	CONC AVG (mg/L)
10-Mar-10	156	181
10-Apr-10	154	185
10-May-10	154	190
10-Jun-10	172	201
10-Jul-10	188	206
10-Aug-10	166	187
10-Sep-10	154	188
10-Oct-10	174	199
10-Nov-10	150	189
10-Dec-10	160	188
10-Jan-11	166	196
10-Feb-11	160	196
10-Mar-11	166	189
10-Apr-11	150	186
10-May-11	152	171
10-Jun-11	160	189
10-Jul-11	166	198
10-Aug-11	188	223
10-Sep-11	154	198
10-Oct-11	162	188
10-Nov-11	160	189
10-Dec-11	154	192
10-Jan-12	160	192
10-Feb-12	181	202
10-Mar-12	149	206
10-Apr-12	124	167
10-May-12	162	187
10-Jun-12	166	184
10-Jul-12	158	182
10-Aug-12	166	184
10-Sep-12	164	208
10-Oct-12	176	189
10-Nov-12	146	208
10-Dec-12	168	193
10-Jan-13	154	174
10-Feb-13	160	186
10-Mar-13	148	183

Attachment 8

Thornburg WWTP (VA0029513)
- Effluent Hardness Values
March 2010 -- October 2014

Date DMR Due	CONC MIN (mg/L)	CONC AVG (mg/L)
10-Apr-13	154	205
10-May-13	154	193
10-Jun-13	160	184
10-Jul-13	164	189
10-Aug-13	164	193
10-Sep-13	162	200
10-Oct-13	190	211
10-Nov-13	192	211
10-Dec-13	184	199
10-Jan-14	172	194
10-Feb-14	166	181
10-Mar-14	160	173
10-Apr-14	158	194
10-May-14	158	194
10-Jun-14	182	204
10-Jul-14	200	217
10-Aug-14	208	250
10-Sep-14	232	243
10-Oct-14	208	229
Average Hardness		**195**
Minimum Hardness	**124**	
Mode	**154**	**189**

Westernik, Anna (DEQ)
From: Westernik, Anna (DEQ)
Sent: Tuesday, June 22, 2010 9:12 AM
To: 'Doug Crooks'
Subject: Thornburg Attachment A Data

Doug

I have run the metals limits using the Attachment A data submitted for the Thornburg STP on April 7, 2010 and found that no limits are required.

Anna

Attachment 9

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Thornburg STP Permit No.: VA0029513

Receiving Stream: Po River, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO3) =	150 mg/L
90% Temperature (Annual) =	deg C	7Q10 (Annual) =	0 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	0 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	deg C
90% Maximum pH =	SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	SU
10% Maximum pH =	SU	30Q10 (Wet season)	0 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	SU
Tier Designation (1 or 2) =	1	30Q5 =	0 MGD			Discharge Flow =	0.345 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	y						

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile [C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	5.84E+01	7.09E+00	na	--	5.8E+01	7.1E+00	na	--	--	--	--	--	--	--	--	--	5.8E+01	7.1E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	5.84E+01	7.09E+00	na	--	5.8E+01	7.1E+00	na	--	--	--	--	--	--	--	--	--	5.8E+01	7.1E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine [C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	6.2E+00	1.6E+00	na	--	6.2E+00	1.6E+00	na	--	--	--	--	--	--	--	--	--	6.2E+00	1.6E+00	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	7.9E+02	1.0E+02	na	--	7.9E+02	1.0E+02	na	--	--	--	--	--	--	--	--	--	7.9E+02	1.0E+02	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene[C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	2.0E+01	1.3E+01	na	--	2.0E+01	1.3E+01	na	--	--	--	--	--	--	--	--	--	2.0E+01	1.3E+01	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD[C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE[C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT[C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene[C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane[C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane[C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene[C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin[C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene[C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene [C]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene [C]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane [C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone [C]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	2.0E+02	2.3E+01	na	--	2.0E+02	2.3E+01	na	--	--	--	--	--	--	--	--	--	2.0E+02	2.3E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [C]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	2.6E+02	2.9E+01	na	4.6E+03	2.6E+02	2.9E+01	na	4.6E+03	--	--	--	--	--	--	--	--	2.6E+02	2.9E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine [C]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine [C]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine [C]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total [C]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	4.2E+03
Silver	0	6.9E+00	--	na	--	6.9E+00	--	na	--	--	--	--	--	--	--	--	--	6.9E+00	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	--	--	na	4.0E+01
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	--	--	na	4.7E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	--	--	na	6.0E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	4.6E-01	7.2E-02	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	--	--	na	7.0E+01
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
Zinc	0	1.7E+02	1.7E+02	na	2.6E+04	1.7E+02	1.7E+02	na	2.6E+04	--	--	--	--	--	--	--	--	1.7E+02	1.7E+02	na	2.6E+04

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	9.4E-01
Chromium III	6.2E+01
Chromium VI	6.4E+00
Copper	7.6E+00
Iron	na
Lead	1.4E+01
Manganese	na
Mercury	4.6E-01
Nickel	1.7E+01
Selenium	3.0E+00
Silver	2.8E+00
Zinc	6.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

6/22/2010 9:09:56 AM

Facility = Thornburg STP
Chemical = Zinc
Chronic averaging period = 4
WLAa = 170
WLAc = 170
Q.L. = 1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 27.5
Variance = 272.25
C.V. = 0.6
97th percentile daily values = 66.9189
97th percentile 4 day average = 45.7542
97th percentile 30 day average= 33.1664
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

27.5

6/22/2010 9:07:21 AM

Facility = Thornburg STP
Chemical = Copper
Chronic averaging period = 4
WLAa = 20
WLAc = 13
Q.L. = 1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 7.6
Variance = 20.7936
C.V. = 0.6
97th percentile daily values = 18.4939
97th percentile 4 day average = 12.6448
97th percentile 30 day average= 9.16600
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

7.6

6/22/2010 9:08:35 AM

Facility = Thornburg STP
Chemical = Nickel
Chronic averaging period = 4
WLAa = 260
WLAc = 29
Q.L. = 1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 4.1
Variance = 6.0516
C.V. = 0.6
97th percentile daily values = 9.97701
97th percentile 4 day average = 6.82153
97th percentile 30 day average= 4.94481
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

4.1

ATTACHMENT A
DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY CRITERIA MONITORING

CASRN#	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL[1]	REPORTING RESULTS	SAMPLE TYPE[2]	SAMPLE FREQUENCY
	METALS					
7440-36-0	Antimony, dissolved	(3)	640	<QL	G or C	1/5 YR
7440-38-2	Arsenic, dissolved	(3)	90	<QL	G or C	1/5 YR
7440-43-9	Cadmium, dissolved	(3)	0.94	<QL	G or C	1/5 YR
16065-83-1	Chromium III, dissolved [6]	(3)	62	<QL	G or C	1/5 YR
18540-29-9	Chromium VI, dissolved [6]	(3)	6.4	<QL	G or C	1/5 YR
7440-50-8	Copper, dissolved	(3)	7.6	1.6 ug/L	G or C	1/5 YR
7439-92-1	Lead, dissolved	(3)	14	<QL	G or C	1/5 YR
7439-97-6	Mercury, dissolved	(3)	0.46	<QL	G or C	1/5 YR
7440-02-0	Nickel, dissolved	(3)	17	4.1 ug/L	G or C	1/5 YR
7782-49-2	Selenium, dissolved	(3)	3.0	<QL	G or C	1/5 YR
7440-22-4	Silver, dissolved	(3)	2.8	<QL	G or C	1/5 YR
7440-28-0	Thallium, dissolved	(4)	(5)	<QL	G or C	1/5 YR
7440-66-6	Zinc, dissolved	(3)	66	27.5 ug/L	G or C	1/5 YR

Douglas J. Crooks Division Director WWTF

Name of Principal Exec. Officer or Authorized Agent/Title

4-1-10

Signature of Principal Officer or Authorized Agent/Date

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. Sec. 1001 and 33 U.S.C. Sec. 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)

Analyzed 6/22/2010

03/19/10 – Spotsylvania - Thornburg
Permit Application
This Analytical report contains 5 pages

Doug Crooks
Spotsylvania County
10900 HCC Drive
Fredericksburg, VA 22408

Date Sent: 03/30/10

HRSD is in the process of obtaining VELAP/NELAC accreditation from DCLS, the Division of Consolidated Laboratory Services. Analytical test results for methods listed on the laboratory's accreditation scope meet all requirements of VELAP/NELAC unless otherwise noted under the individual analysis.

Test results relate only to the sample tested. Clients should be aware that a critical step in chemical or microbiological analysis is the collection of the sample.

If you have any questions concerning this report, please do not hesitate to call Danny Barker, TSD Environmental Scientist at (757) 460-4247, Robin Parnell, CEL Laboratory Manager at (757) 460-4203 or Cindi Reno, CEL Administrative Assistant at (757) 460-4205.

SUBMITTED BY:
Hampton Roads Sanitation District / HRSD
Central Environmental Laboratory / CEL
1432 Air Rail Avenue
Virginia Beach, VA 23455-3002

HAMPTON ROADS SANITATION DISTRICT

HRSD • CENTRAL ENVIRONMENTAL LABORATORY
1432 AIR RAIL AVE., VIRGINIA BEACH, VIRGINIA 23455-3002 • (757) 460-4205 • FAX: (757) 460-6586
www.hrsd.com

ANALYTICAL REPORT

Project: Spotsylvania County - Thornburg Treatment Plant - Permit Application
Customer Sample ID: Field Blank
Project Code: SP_TH
Sample Point: FB
Sample Date: 03/19/10

Analyte	Method	Unit	Result	Report Limit	Analyst	Analysis Date	Analysis Time
Total Metals							
Chromium	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	10:31
Dissolved Metals- FB,FNE							
Antimony	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	10:36
Arsenic	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	10:36
Cadmium	EPA 200.8	ug/L	<0.5	0.5	CBATO	03/26/10	10:36
Chromium III (measured as Total Chromium)*	Calculation	ug/L	<1.0	1.0			
Chromium VI (measured as Total Chromium)*	Calculation	ug/L	<1.0	1.0			
Copper	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	10:36
Lead	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	10:36
Mercury	EPA 245.1	ug/L	<0.2	0.2	MALCOR	03/24/10	10:24
Nickel	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	10:36
Selenium	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	10:36
Silver	EPA 200.8	ug/L	<0.5	0.5	CBATO	03/26/10	10:36
Thallium	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	10:36
Zinc	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	10:36

Notes
Report Limit is lowest concentration at which quantitation is demonstrated.
**Value based on Analysis of Total Chromium by EPA 200.8.*

Authorization: Robin Parnell Date: 3/29/10

HRSD • CENTRAL ENVIRONMENTAL LABORATORY
1432 AIR RAIL AVE., VIRGINIA BEACH, VIRGINIA 23455-3002 • (757) 460-4205 • FAX: (757) 460-6586
www.hrsd.com

ANALYTICAL REPORT

Project: Spotsylvania County - Thornburg Treatment Plant - Permit Application
Customer Sample ID: Final Effluent
Project Code: SP_TH
Sample Point: FNE
Sample Date: 03/19/10

Analyte	Method	Unit	Result	Report Limit	Analyst	Analysis Date	Analysis Time
Misc. Parameters- FNE							
Hardness (as $CaCO_3$)	SM 2340B	mg eq $CaCO_3$/L	170	0.2	SLABOC	03/26/10	08:54
Total Metals							
Chromium	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	10:42
Dissolved Metals							
Antimony	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	11:15
Arsenic	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	11:15
Cadmium	EPA 200.8	ug/L	<0.5	0.5	CBATO	03/26/10	11:15
Chromium III (measured as Total Chromium)*	Calculation	ug/L	<1.0	1.0			
Chromium VI (measured as Total Chromium)*	Calculation	ug/L	<1.0	1.0			
Copper	EPA 200.8	ug/L	1.6	1.0	CBATO	03/26/10	11:15
Lead	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	11:15
Mercury	EPA 245.1	ug/L	<0.2	0.2	MALCOR	03/24/10	10:27
Nickel	EPA 200.8	ug/L	4.1	1.0	CBATO	03/26/10	11:15
Selenium	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	11:15
Silver	EPA 200.8	ug/L	<0.5	0.5	CBATO	03/26/10	11:15
Thallium	EPA 200.8	ug/L	<1.0	1.0	CBATO	03/26/10	11:15
Zinc	EPA 200.8	ug/L	27.5	1.0	CBATO	03/26/10	11:15

Notes
Report Limit is lowest concentration at which quantitation is demonstrated.
**Value based on Analysis of Total Chromium by EPA 200.8.*

Authorization: Robin Parnell **Date:** 3/29/10

QUALITY ASSURANCE REPORT
Level 1

PROJECT : Spotsylvania County - Thornburg Treatment Plant - Permit Application
PROJECT CODE: SP_TH
SAMPLE POINT: FB; FNE
SAMPLE DATE: 03/19/10

Analytical Run Information	Sb	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Tl	Zn
Method	200.8	200.8	200.8	200.8	200.8	200.8	245.1	200.8	200.8	200.8	200.8	200.8
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Method Detection Limit (MDL)	0.016	0.03	0.006	0.031	0.02	0.04	0.03	0.023	0.03	0.015	0.021	0.22
Report Limit (RL)	1.0	1.0	0.5	1.0	1.0	1.0	0.2	1.0	1.0	0.5	1.0	1.0
Average LRB	0.06*	<0.03	0.007	<0.031	<0.02	<0.04	<0.03	0.061*	<0.03	<0.015	<0.021	0.48*

Total Metals	Cr
Sample ID: SP_TH FNE	
Matrix Spike Conc.	20.0
MS Percent Recovery	99%
MSD Percent Recovery	99%
MS/MSD RPD	<1

Dissolved Metals	Sb	As	Cd	Cu	Pb	Hg	Ni	Se	Ag	Tl	Zn
Sample ID: SP_TH FNE											
Matrix Spike Conc.	20.0	20.0	20.0	20.0	20.0	1.0	20.0	20.0	20.0	20.0	20.0
MS Percent Recovery	104%	104%	97%	92%	105%	110%	92%	107%	94%	100%	87%
MSD Percent Recovery	104%	105%	99%	94%	103%	115%	92%	105%	96%	99%	95%
MS/MSD RPD	<1	2	2	2	2	5	<1	2	3	1	4

LRB - Laboratory Reagent Blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference
*Report Limit is lowest concentration at which quantitation is demonstrated. Values below Report Limit should not be used for compliance determinations due to a high degree of uncertainty.

Validated By : _____ **Date:** 03/29/10

CHAIN OF CUSTODY

HAMPTON ROADS SANITATION DISTRICT
CENTRAL ENVIRONMENTAL LABORATORY
1432 AIR RAIL AVENUE
VIRGINIA BEACH, VA 23455
TEL: 757-460-4214
FAX: 757-460-6586

PROJECT NAME/CODE: Thornburg _SP_TH

CUSTOMER SAMPLE ID	HRSD Use Only: PROJECT CODE	HRSD Use Only: SAMPLE POINT	DATE	TIME	SAMPLED BY	Circle One: MATRIX	Circle One: SAMPLE TYPE	ANALYSES REQUESTED, CGN & NUMBER OF CONTAINERS: METALS TOTAL (8)	METALS DISS. (5&)						Project in Lims? Yes / No	HRSD Use Only: Presv'd Checked	HRSD Use Only: CONT. COUNT
	SP_TH	FNE	3/19/2010	1120	KC	L	G	1 ✓	1 ✓							✓	2
	SP_TH	FB	3/19/2010	1115	KC	L	G	1 ✓	1 ✓							✓	2

COMMENTS:

Relinquished by / Signature: Kyle Bass	Date/Time: 3/19/10 @ 1423	Temp. Requirement: Where required, submitted samples were transported in coolers maintained at ≤ 6 °C. Yes ✓ No ____ Int KC
Received by / Signature: Darlene Radford	Date/Time: 03/19/10 @ 1423	
Relinquished by / Signature	Date/Time	
Received by / Signature	Date/Time	
Relinquished by / Signature	Date/Time	
Received by / Signature	Date/Time	
Relinquished by / Signature	Date/Time	
Received by / Signature	Date/Time	

All sample(s) met proper *preservation requirements. Yes ✓ No ____ Int DR 4/FO

*Preservatives

- *Hg, Metals (pH<2 - HNO3) (Clean metals check in section)
- *O&G (pH<2 - HCl, check in section) & store ≤ 6 °C
- CN (pH>12 - NaOH) & store ≤ 6 °C
- *Sulfide (pH>9 - NaOH+ZnAc) & store ≤ 6 °C
- *Micro ($Na_2S_2O_3$ + EDTA) & store < 10 °C
- *COD, NUT, Phenols (pH<2 - H_2SO_4) & store ≤ 6 °C
- *TOC (pH<2 - H_3PO_4) & store ≤ 6 °C
- *BOD, TSS, TVSS, Turbidity, Surfactant, Sulfate store ≤ 6 °C
- *NUT Non Acidified, Conductivity, Organics store ≤ 6 °C
- *Cr (VI) (pH 9.3 - 9.7 - $(NH_4)_2SO_4$) & store ≤ 6 °C

Sample Type: C=Composite, G=Grab Matrix: L= Liquid , S = Solid CGN: Container Group Number

NOTE: ALL APPLICABLE INFORMATION MUST BE COMPLETED PRIOR TO ACCEPTANCE.

FIELD RECORD (S)

Spotsylvania County Grab Field Sheet

Thornburg

Information checked before the start of sampling event:

1. Were representative conditions verified by plant operator? Y / N KLM (initial)
   - 1a. If "no" does client want to proceed with sampling? Y / N
   - 1b. If the answer to this question is NO, contact project manager immediately
2. Sample event date and time 3/19/10 1120
3. Does RWI have any abnormal characteristics (i.e.. odor, color) ? Y / N
   - 3a. If YES contact project manager immediately
4. Sampling personnel : K. Curtis , K. Martin

Information checked at the end of sampling

1. FNE grab end time / date 1120 3/19/10
2. FB grab end time / date 1115 3/19/10

Record any other circumstances which could affect the sample integrity:

_____

_____

_____

_____

Notes:

_____

_____

_____

_____

12/2/2014 3:50:33 PM

Facility = Thornburg WWTP
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 19
WLAc = 2.5
Q.L. = 0.2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 5.04417523354078
Average Weekly limit = 3.68953019587432
Average Monthly LImit = 2.74821775725886

The data are:

9

10/10/2014 4:10:20 PM

Facility = Thornburg WWTP
Chemical = TRC
Chronic averaging period = 30
WLAa = 19
WLAc = 11
Q.L. = 100
# samples/mo. = 90
# samples/wk. = 23

Summary of Statistics:

observations = 1
Expected Value = 200
Variance = 14400
C.V. = 0.6
97th percentile daily values = 486.683
97th percentile 4 day average = 332.758
97th percentile 30 day average= 241.210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 19
Average Weekly limit = 9.79422659744245
Average Monthly LImit = 8.73682078956467

The data are:

200

2111 North Hamilton Street Richmond, VA. 23230

SUBJECT: Spotsylvania County: Stream Assimilations for Thornburg and Wishner Sewage Treatment Plants.

TO: Kitty Turner - OERS

FROM: Coleen Sullins - NRO Coleen

DATE: August 26, 1986

COPIES: Files

Ed - Looks good. Kitty 9/24/86

RECEIVED
SEP 25 1986
BY
NORTHERN REGIONAL OFFICE

Engineering consultants Hayes, Seay, Mattern and Mattern, have requested stream assimilation anaylses for the Thornburg STP discharge into an unnamed tributary of Po River and the Wishner STP discharge into the Ni River. Each assimilation impacts the other, see attached skematic.

Based on previous models, the allowed extent of dissolved oxygen degradation was to an instream DO level of 5.73 mg/l. The current model was developed allowing no further degradation of the Poni River. To the extent reasonable, the information used in the previous models was incorporated in the current assimilation performed. Any change in the information was based upon site inspections and the dry/drought conditions of this year.

The following parameters were changed:

1. The tributaries into which the J.J. Wright STP and the Thornburg STP discharge into were dry during the site inspection, flow was assumed in past models.

2. Several of the reaeration constants were changed based on new information. The justification for using these constants was that they were lower than previous constants and therefore would be more conservative (the writer feels they are more realistic, based on observed conditions).

In order to accurately assess the impact of increasing the amount of discharge into the Po River, the upstream conditions were evaluated. Above the Thornburg discharge are two other discharges, the JJ Wright STP and the Indian Acres STP. These two discharges were modeled to the confluence of the tributary into which the Thornburg STP discharges.

The following information was put into the Monroe Calculator for stretches #1-#3(calculations attached):

#1

1. BOD = 60
2. TKN = 0
3. Deficit = 1.55
4. Kd = .317
5. Kn = 0
6. Ka = 10.83
7. t = 0.2
8. DOs = 7.55

#2

1. BOD = 12.3
2. TKN = 0
3. Deficit = 1.11
4. Kd = 0.19
5. Kn = 0
6. Ka = 4.09
7. t = 1.6
8. DOs = 7.56

Attachment 11

#3

1. BOD = 37.4
2. TKN = 0
3. Deficit = 0.8
4. Kd = 0.268
5. Kn = 0
6. Ka = 4.09
7. t = 1.5
8. DOs = 7.56

At the bottom of stretch #3 the parameters were the following:

BOD_5 = 10.0 mg/l
DO = 5.81 mg/l

Stretch #4, x-tributary of Po River, containing the Thornburg dishcarge was modeled to the Po River, with the following parameters:

	Q STP MGD	BOD mg/l	DO mg/l
1.	0.175	24	6.8
2.	0.275	20	6.8
3.	0.345	20	7.0

Stretch #4:

		0.175	0.275	0.345
1.	BOD	60	50	50
2.	TKN	0	0	0
3.	Deficit	0.75	0.75	0.55
4.	Kd	0.317	0.269	0.269
5.	Kn	0	0	0
6.	Ka	13.8	13.8	13.8
7.	t	0.25	0.25	0.25
8.	DOs	7.55	7.55	7.55

The parameters at the end of the stretch were the following:

BOD_5	22.17mg/l	18.7mg/l	18.7mg/l
DO	6.29mg/l	6.65mg/l	6.65mg/l

Stretch #5, the Po River was modeled combining the discharges from upstream on the Po and the tributary containing Thornburg, to the confluence with the Ni River. From the previous models, the amount of dissolved oxygen in the Po River at the confluence with the Ni River was 6.0 mg/l. Using 6.0 mg/l as the lowest allowable level of dissolved oxygen in the river, the assimilations were run with the following parameters:

Thornburg:		0.175 MGD	0.275 MGD	0.345 MGD
1.	BOD	34.7	34.2	35.4
2.	TKN	0	0	0
3.	Deficit	1.6	1.4	1.35
4.	Kd	0.265	0.265	0.265
5.	Kn	0	0	0
6.	Ka	4.09	4.09	4.09
7.	t	1.6	1.6	1.6
8	DOs	7.57	7.57	7.57

The parameters at the end of the stretch were the following:

Thornburg STP	0.175 MGD	0.275 MGD	0.345 MGD
BOD_5	9.08 mg/l	8.95 mg/l	9.27 mg/l
DO	6.0 mg/l	6.02 mg/l	5.97 mg/l

Stretch #6, From the Wishner STP discharge to the confluence with the Po River. On this stretch, it was assumed that the Courthouse Lagoon was offline, as this is the purpose of upgrading the Wishner STP.

Information from the previous models was incorporated into stretch #6. The reaeration constant was recalculated using the O'Connor and Dobbins and the Owens et. al. equations, the results were within a 12% error of the previous model, therefore the information from the previous model was used. The information used in the stream assimilations is stated in the calculations section of this memo. The critical DO for this stretch was not allowed to drop below 5.50 mg/l, based on previous models (for all flows).

Worst case scenarios from stretches #5 and #6 were combined and the stream assimilation capacity for stretch #7 was calculated. From previous models, the critical stream DO was 5.73 mg/l. The critical stream DO for the current model was 5.74 mg/l. Therefore, the effluent limitations assumed for the STPs were appropriate.

A worst case for the Po River and the Ni River were determined and using that information, acceptable effluent limitations were able to be determined. The following tables present the proposed effluent limitations for the Thornburg and Wishner STPs:

Thornburg STP

Flow MGD	BOD_5 mg/l	DO mg/l
0.175	24	6.8
0.275	20	6.8
0.345	20	7.0

Wishner STP

Flow MGD	BOD_5 mg/l	DO mg/l
0.150	24	6.5
0.175	24	6.8
0.200	20	6.8
0.225	20	6.8
0.250	20	6.8

Calculations:

Stretch #1

J.J. Wright STP
$Q = 0.015$ MGD
$BOD_5 = 24$ mg/L
DO = 6.0 mg/L

x-tributary
$Q = 0$

$BOD_u = 24(2.5) = 60$ mg/L

$DO_s = 7.6(1 - 0.00003[220]) = 7.55$ mg/L

$DO_f = 6.0$

$D_a = 7.55 - 6.0 = 1.55$ mg/L

$k_r = 0.2\ d^{-1}$ @ 30° $k_r = 0.2(1.047)^{10} = 0.317\ d^{-1}$

$k_a = 10.9\left(\frac{u}{H}\right)^{0.85}$ Negulescu & Rojanski for depths < 0.5 ft

$k_a = 10.9\left(\frac{0.3}{0.4}\right)^{0.85} = 8.54\ d^{-1}$

k_a @ 30°C $= 8.54(1.024)^{10} = 10.83\ d^{-1}$

$t = \frac{1.0\ mi}{0.36\ fps} \left| \frac{5280\ ft/mi}{86,400\ s/d} \right. = 0.2\ d$

Stretch #2

End of #1
$BOD_5 = 22.3$ mg/L
DO = 5.88 mg/L
$Q = 0.015$ MGD

Po River
$BOD_5 = 2.0$ mg/L
DO = 6.5 mg/L
$Q = 0.137$ MGD

$$BOD_u = \left[\frac{22.53(0.015) + 3(0.137)}{0.152}\right] 2.5 = 12.3 \text{ mg/l}$$

$$DO_s = 7.6(1 - 0.0003[190]) = 7.56 \text{ mg/l}$$

$$DO_f = \frac{5.48(0.015) + 6.5(0.137)}{0.152} = 6.44 \text{ mg/l}$$

$$D_o = 7.56 - 6.44 = 1.12 \text{ mg/l}$$

$k_r = 0.12$ $\quad k_r @ 30° = 0.12(1.047)^{10} = 0.19$

$$k_a = \frac{23.3\, u^{0.73}}{H^{1.75}}$$ Owens et al. & $0.1 \le u \le 1.8$ fps, $0.4 \le H \le 11$ ft

$$k_a = \frac{23.3(0.1)^{0.73}}{(1.2)^{1.75}}$$

$$k_a = 3.16 \text{ d}^{-1}$$

$$k_a @ 30° = 3.16(1.024)^{10} = 4.09 \text{ d}^{-1}$$

$$t = \frac{2.6 \text{ mi}}{0.1 \text{ fps}} \left|\frac{5280}{86,400}\right. = 1.6 \text{ d}^{-1}$$

Stretch #3

End of Stretch #2	Po River	Indian A
BOD = 3.63 mg/l	BOD = 3.0 mg/l	BOD = 21 m
DO = 7.12 mg/l	DO = 6.5 mg/l	DO = 6.5,
Q = 0.152 MGD	Q = 0.008 MGD	Q = 0.2 M

$$BOD_{ic} = \left[\frac{3.63(0.152) + 3(0.008) + 0.2(21)}{0.36}\right] 2.5 = 37.3,$$

$DO_s = 7.6(1 - 0.000023[170]) = 7.56 mg/L$

$DO_f = \frac{7.12(0.152) + 6.5(0.008) + 6.5(0.2)}{0.36} = 6.76 mg/L$

$D_a = 7.56 - 6.76 = 0.8 mg/L$

$k_r = 0.169$ $\quad k_r @ 30° = 0.169(1.047)^{10}$

$k_r = 0.268 d^{-1}$

$k_a = 4.09$ (see above)

$t = \frac{2.45 mi}{0.1 fps} \left| \frac{5280 ft/mi}{86400 s/d} \right. = 1.5 d$

Stretch #4 (x-tributary / Thornburg STP)

Thornburg STP

	Q	BOD_5	DO
1.	0.175 MGD	24 mg/L	6.8 mg/L
2.	0.275 MGD	20 mg/L	6.8 mg/L
3.	0.345 MGD	20 mg/L	7.0 mg/L

x-tributary
$Q = 0$

$DO_s = 7.6(1 - 0.000023[220]) = 7.55 mg/L$

$k_a = 10.9\left(\frac{u}{H}\right)^{0.85}$ (see above)

$k_a = 10.9\left(\frac{0.4}{0.9}\right)^{0.85} = 10.9$

$k_a @ 30° = 10.9(1.024)^{10} = 13.8 d^{-1}$

	Q = 0.175	Q = 0.275	Q = 0.345 ④
1. BOD_u =	24(2.5) 60 mg/l	20(2.5) 50 mg/l	20(2.5) 50 mg/l
2. D_a =	0.75 mg/l	0.75 mg/l	0.55 mg/l

Stretch #5

End of Stretch #4

① Q = 0.175 MGD
BOD = 22.17 mg/l
DO = 6.27 mg/l

② Q = 0.275 MGD
BOD = 18.7 mg/l
DO = 6.63 mg/l

③ Q = 0.345
BOD = 18.7 mg/l
DO = 6.64 mg/l

End of Stretch #3

Q = 0.36 MGD
BOD = 10.0 mg/l
DO = 5.81 mg/l

Po River

Q = 0.005 MGD
BOD = 3 mg/l
DO = 6.5 mg/l

① $BOD_u = \left(\frac{22.17(0.175) + 10(0.36) + 3(0.005)}{0.54}\right) 2.5 = 34$

$DO_f = \frac{6.27(0.175) + 5.81(0.36) + 6.5(0.005)}{0.54} = 5.97$

$DO_s = 7.6(1 - 0.00003[140]) = 7.54$ mg/l

$D_a = 7.54 - 5.97 = 1.6$ mg/l

$k_r = 0.16.7$ $k_1 @ 21° = 0.16.7(1.047)^{10} = 0.26.5$ d

k_a - see above

(2) $BOD_u = \left(\frac{18.7(0.275) + 10(0.36) + 3(0.005)}{0.64}\right) 2.5 = 34.2$ mg/l (5)

$DO_f = \frac{6.63(0.275) + 5.81(0.36) + 6.5(0.005)}{0.64} = 6.17$ mg/l

$D_a = 7.57 - 6.17 = 1.4$ mg/l

(3) $BOD_u = \left(\frac{18.7(0.345) + 10(0.36) + 3(0.005)}{0.71}\right) 2.5 = 35.4$ mg/l

$D_f = \frac{6.64(0.345) + 5.81(0.36) + 6.5(0.005)}{0.71} = 6.22$ mg/l

$D_a = 7.57 - 6.22 = 1.35$ mg/l

$k_r = 0.265$ (@ 30°C.)

Stretch # 6 (Ni River / Wishner)

Wishner STP

	Q(MGD)	BOD(mg/l)	DO(mg/l.)
1.	0.150	21	6.5
2.	0.175	21	6.8
3.	0.20	20	6.8
4.	0.225	20	6.8
5.	0.250	20	6.8

Ni. River

$Q = 0.149$ MGD
$BOD = 3.0$ mg/l
$DO = 6.5$ mg/l

$v = 0.3$ fps
$H = 2$ ft
$k_a = 3.9\ d^{-1}$

} old model

$DO_s = 7.6(1 - 0.00003[190]) = 7.56$ mg/l

BOD_u - Calculated as mass balances (see above)
D_a - mass balance. subtracted from DOsat.
K_a - used old model; did comparison calculations and obtained similar results using O'Connor & Dobbins and Owens et al equations (error factor ~12%

Chart below - information used in Monroe Calculator for each flow

	0.15 MGD	0.175 MGD	0.2 MGD	0.225 MGD	0.25 M
1. BOD_u	33.9 mg/l	35.9 mg/l	31.7 mg/l	33.1 mg/l	34.2 m
2. TKN	0	0	0	0	0
3. D_a	1.06 mg/l	0.9 mg/l	0.85 mg/l	0.88 mg/l	0.87 m
4. K_r	0.255 d^{-1}	0.263 d^{-1}	0.245 d^{-1}	0.249 d^{-1}	0.255
5. K_N	0	0	0	0	0
6. K_d	3.9 d^{-1}	3.9 d^{-1}	3.9 d^{-1}	3.9 d^{-1}	3.9 d
7. t	0.5 d	0.5 d	0.5 d	0.5 d	0.5 d
8. DO_s	7.56 mg/l	7.56 mg/l	7.56 mg/l	7.56 mg/l	7.56 m

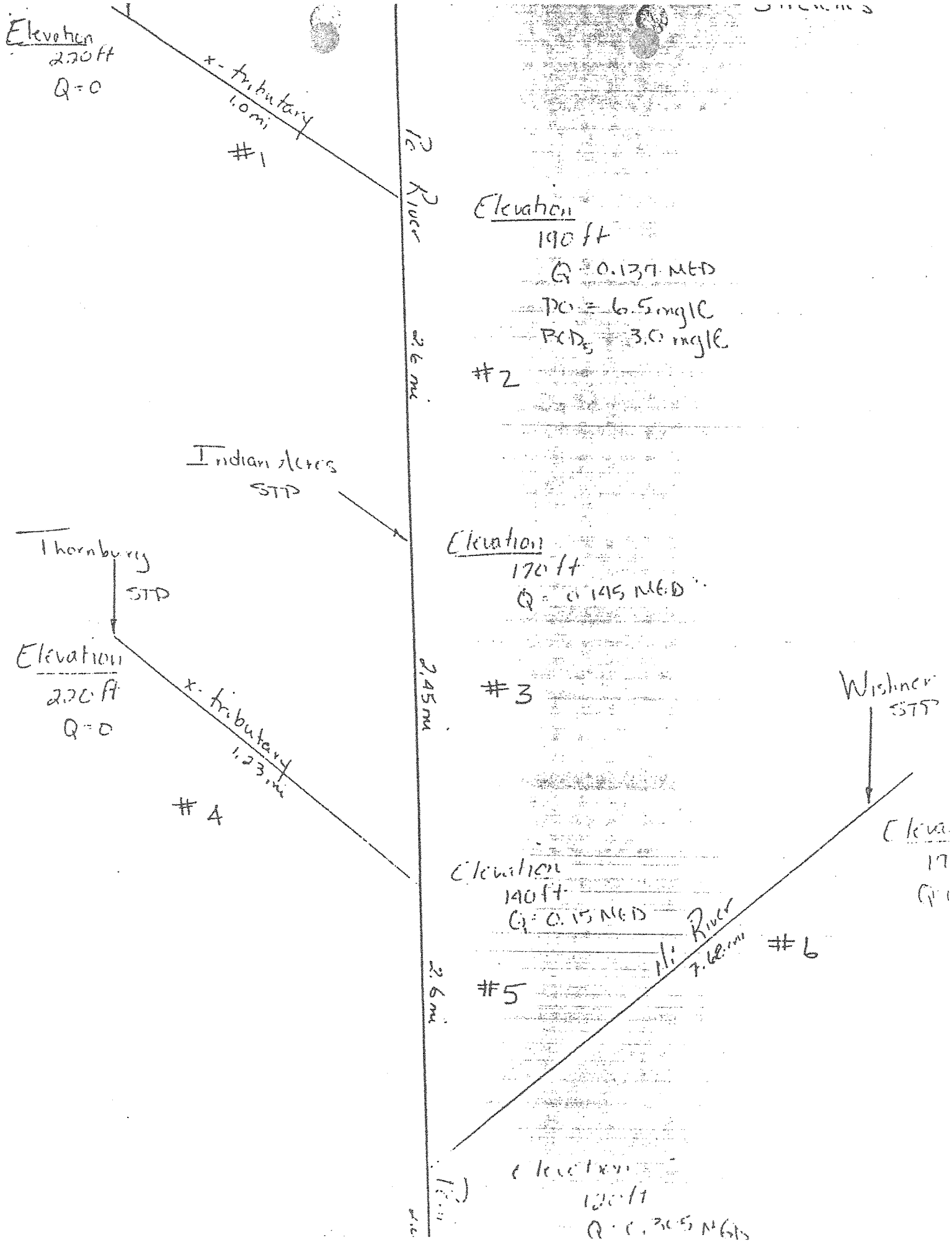
The worst cases from streteh #5 and streteh #6 were modeled down streteh #7 (Pon. River) 3 miles. The DC critical rate 5.74 mg/L, previous models allowed degradation to 5.73 mg/L, therefore the following limits were established for Thornburg and Wishner STP's:

Thornburg STP

Flow MGD	BOD_5 mg/L	D.O mg/L
0.175	24	6.6
0.275	20	6.8
0.345	20	7.0

Wishner STP

Flow MGD	BOD_5 mg/L	DO mg/L
0.150	24	6.5
0.175	24	6.6
0.200	20	6.6
0.225	20	6.6
0.250	20	6.6


Elevation
220 ft
Q = 0
x - tributary
1.0 mi
#1
12 River
Elevation
190 ft
Q = 0.137 MGD
DO = 6.5 mg/L
BOD5 = 3.0 mg/L
#2
2.6 mi
Indian Acres
STP
Thornbury
STP
Elevation
220 ft
Q = 0
x - tributary
1.23 mi
#4
Elevation
170 ft
Q = 0.145 MGD
#3
2.45 mi
Wishiner
STP
Elevation
140 ft
Q = 0.15 MGD
#5
River
7.6 mi
#6
2.6 mi
Elevation
120 ft
Q = 0.305 MGD

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Spotsylvania County, Virginia.

PUBLIC COMMENT PERIOD: December 11, 2014 to January 12, 2015

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Spotsylvania County
10900 HCC Drive
Fredericksburg, VA 22408
VA0029513

NAME AND ADDRESS OF FACILITY: Thornburg WWTF
5225 Mud Tavern Road
Woodford, VA 22580

PROJECT DESCRIPTION: Spotsylvania County has applied for reissuance of a permit for the public Thornburg Wastewater Treatment Facility. The applicant proposes to release treated sewage wastewaters from this facility at a rate of 0.345 million gallons per day into an unnamed tributary of the Po River in Spotsylvania County in the York River Watershed. A watershed is the land area drained by a river and its incoming streams. Sludge from the treatment process will be transferred to the FMC Wastewater Treatment Plant. The permit will limit the following pollutants to amounts that protect water quality: pH, biochemical oxygen demand-5 day, total suspended solids, dissolved oxygen, ammonia as nitrogen, total residual chlorine, and *E. coli* bacteria. Additionally, the permit shall require monitoring for nitrite+nitrate, total Kjeldahl nitrogen, total nitrogen, total phosphorus, and hardness.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.
Name: Anna T. Westernik
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3837 E-mail: anna.westernik@deq.virginia.gov Fax: (703) 583-3821

Attachment 12